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STUDIES OF PERUVIAN BIRDS. No. XXXIII[1]

THE GENERA *TOLMOMYIAS* AND *RHYNCHOCYCLUS* WITH FURTHER NOTES ON *RAMPHOTRIGON*[2]

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Names of colors are capitalized when direct comparison has been made with Ridgway's "Color Standards and Color Nomenclature."

Tolmomyias sulphurescens and *T. flavotectus*

For the most part I am able to follow Hellmayr's arrangement of the two present species with certain modifications due to reinstatement of several forms not admitted by Hellmayr and the recognition of several new ones. The principal source of trouble, however, lies in the discovery that the Amazonian form, *assimilis*, belongs to the *flavotectus* group and not to *sulphurescens* although there is an Amazonian form of *sulphurescens* with a slightly different range from *assimilis* and apparently long confused with it.

With the two series laid out with their related conspecies, the fact becomes evident that not only on the Amazon are these two species living side by side but that in various other parts of the range of *sulphurescens* there are members of the *flavotectus* group that have been confused with the local subspecies of *sulphurescens*. Consequently it has become necessary to go into the matter in some detail and rearrange both groups in a more satisfactory manner. The following account embraces the results of the study.

Perhaps the most striking characteristic of the *flavotectus* group as distinguished from *sulphurescens* and its conspecies is the presence of a whitish or pale yellowish speculum on the outer webs of the primaries beyond the tips of the primary-coverts. Usually this does not involve the three outer primaries, although traces of it may sometimes be seen there also, and it usually is confined to the 7th, 6th, and 5th feathers of this series, but sometimes occupies more, sometimes less. It is occasionally short and all but concealed under the primary-coverts but usually it is very strongly marked and may reach an exposed length of 7 mm. Only rarely is there a small speculum in *sulphurescens*.

The 10th (outermost) primary in *flavotectus* averages distinctly longer than the 4th while in *sulphurescens* it averages shorter. The ground color of the wings is inclined to be a little more deeply blackish than is usual in *sulphurescens;* the feet average more blackish; the mandible is more often tinged with brownish, especially toward the tip; the hook at the tip of the culmen is sometimes at a full right angle to the commissure; the inner margins of the inner tertials are always broadly whitish or pale yellow as they sometimes are in the *sulphurescens* group though not in all the

[1] Earlier numbers in this series comprise American Museum Novitates, Nos. 500, 509, 523, 524, 538, 545, 558, 584, 646, 647, 668, 703, 728, 753, 756, 757, 785, 819, 860, 861, 862, 889, 893, 894, 917, 930, 962, 963, 994, 1042, 1043, and 1044.

[2] See Studies of Peruvian Birds, No. XXVI; American Mus. Novit., No. 930.

forms. The other wing-markings tend to be sharper and stronger in *flavotectus*. The sides of the head in *sulphurescens* have a rather obvious pattern produced by the sooty tips of the auriculars, the pale yellow or whitish bases of these feathers, and sometimes a dusky spot below the eye. In some of the subspecies, this pattern is very pronounced and in most of them there is some trace of it. It is never so well marked in *flavotectus*, where the auriculars are more uniform, either yellowish or olive. In addition, immature specimens of *sulphurescens* have the wing-markings much as in the adults, perhaps a little duller, but the young of the *flavotectus* group have the bright wing-bars tinged with orange.

These characters sometimes fail individually in a few specimens but in combination are effectively diagnostic. If particular forms have some features at their weakest, the other species, if it is found in the same region, may have its corresponding characters emphasized, keeping the proportionate distinctions of the two species though at a slightly different position on the scale. Thus, *T. sulphurescens pallescens* has the facial markings of its group less strongly developed than usual and sometimes shows a slight speculum, being rather pale in general coloration as its name indicates. The local form of the *flavotectus* group, described and named on a later page, has its speculum at the maximum development, has the auricular region quite uniformly colored, and is dark in general color, quite easily distinguishable from *pallescens*.

The interrelationships of the various forms of *sulphurescens*, of which there are a large number, do not follow geographical progression with any regularity at all. The Trinidad form is most like the southeast-Brazilian; the Costa Rican birds are most like the west-Colombian; the Panamá form is most like the north-Venezuelan and Santa Martan subspecies; the Tocantins form is approached most closely by the Paraguayan birds. The entire series, however, forms a fairly compact group with the general characteristics given above.

It has been found necessary to name a number of new forms for which no available names appear in synonymy. These new forms cannot be referred to existing subspecies since they are not intermediates between the adjacent forms on opposite sides but represent extremes of one kind or another or, if intermediate in nature, are so with regard to distant members of the group. Some of the revivified names apply to forms that are more clearly intermediate in nature but that appear to deserve recognition because of the extent of territory that they occupy.

Tolmomyias sulphurescens sulphurescens (Spix)

Platyrhynchus sulphurescens SPIX, 1825, Av. Bras., II, p. 10, Pl. XII, fig. 1—part (description of ♂); Rio de Janeiro and Piauhy (Rio de Janeiro suggested by Hellmayr, 1927); cotypes in Munich Mus.

Rhynchocyclus scotius OBERHOLSER, 1902, Proc. U. S. Nat. Mus., XXV, p. 63—Brazil (= "Rio" skin; Hellmayr); U. S. Nat. Mus.

It is possible that the birds of southeastern Brazil need some revision but it may suffice for the present to call attention to the trends noticed in the material examined in this connection.

Typical *sulphurescens* appears to occupy the coastal states of Brazil from Rio Grande do Sul north to Rio de Janeiro and São Paulo, with the birds from Rio Grande do Sul the darkest colored and all with the top of the head definitely green though of a deep tone. One example from near Rio de Janeiro has the cap more grayish, but it is exceptional. Birds from Espirito Santo and Minas Geraës are slightly paler on the back and have more of a tinge of gray on the cap, but the differences are slight and I have no hesitation in including these specimens in *sulphurescens*. Three examples from eastern Paraguay are closer to *sulphurescens* than to *grisescens* (discussed below) and are left here. Specimens from Bahia and Piauhy are much paler throughout and do not belong to the typical form, possibly needing a distinctive name. They are further discussed under *pallescens* which they approach most closely.

Twenty-five examples from eastern and northeastern Bolivia, Matto Grosso, and northern Argentina (Salta) differ from a series of southeast Brazilian (Paraná, Rio

de Janeiro, São Paulo, and Minas Geraës) birds, typical *sulphurescens*, by their brighter and lighter green upper parts, lesser admixture of grayish on the crown, lighter yellow under parts, yellower throats, smaller bills, and paler margins of the wings. Since the series includes the type of *pallescens*, that name is available for this form.

Two or three Bolivian specimens have somewhat more gray on the crown than the average but they agree in other respects with the rest of the series. The grayer caps probably indicate a trend toward the birds of southeastern Perú which I characterize on a following page.

As a matter of fact, *pallescens* is exceedingly close to *exortivus* of Santa Marta, Colombia, and the northern parts of Venezuela, so close that it is very difficult to find any true characters of distinction, in spite of the wide separation of their respective ranges. Since specimens from each of the two areas cover a large part of the year, there appears to be no question of migration and seasonal distinction involved in the problem. A careful examination shows *pallescens* to be slightly duller yellow on the belly, a little more shaded with faint grayish on the chest, and almost imperceptibly paler on the back than the northern series. With this characterization, this form may be recognized tentatively though largely for geographical reasons.

One skin from Salta, Argentina, is closer to *pallescens* than to typical *sulphurescens* and is much too bright for inclusion in *grisescens*.

I am puzzled by nine examples from Bahia and Piauhy, Brazil. In general they come closest to *pallescens*, being much lighter in general coloration than *sulphurescens*. The back is of the same light, clear green as in *pallescens* but the top of the head also is green without any of the grayish tinge that is found in that form while the under parts are paler and duller, with the chest not at all tinged with olive though with a faint suggestion of pale buff or drab, noticeable only in comparison with the other form. Possibly these eastern birds represent an extreme of *pallescens* at the opposite end of the scale from the Bolivian examples which sometimes have the head rather strongly grayish. It is more likely that they deserve separation as a distinct subspecies which I refrain from naming at present.

Six Paraguayan specimens differ from both *sulphurescens* and *pallescens* by their much duller and more grayish coloration, particularly conspicuous on the anterior under parts. The name *grisescens*, based on a female from Sapucay, Paraguay, appears to be available for this form although its author referred seven birds from the type locality to *sulphurescens* and only one, the type, to *grisescens*. The type, from its description, must be abnormally grayish but it could be but an extreme expression of the definite tendency in that direction exhibited by the birds at hand, some of which are from Trinidad, Paraguay, not a great distance from the type locality.

Ten additional Paraguayan specimens are not so plainly distinguishable. Three of them, two from east of Caaguassú and one from Abai, are exactly intermediate between *grisescens* and *sulphurescens*, perhaps a little closer to the typical form where I place them for the present. I am not able to find Abai on the map but Caaguassú is well toward the eastward, approaching the São Paulo region of Brazil where *sulphurescens* occurs.

The remaining seven examples (from Belén, La Fonciere, and Zanja Moroti), are dull above, like the six birds first mentioned, but are a little brighter yellow beneath although they do not approach the deep yellow of *sulphurescens*. Their dull dorsal coloration distinguishes them from *pallescens*.

Birds from southern Matto Grosso (Urucum, Descalvados, and Tapirapoan), are somewhat intermediate between *grisescens* and *pallescens* but are closer to *pallescens* which is rather typical at Chapada.

Two specimens from Todos Santos and one from Vermejo, Santa Cruz, Bolivia, are more strongly tinged with olive on the breast than the rest of the series but otherwise they agree well with them. One example from Aguaray, Salta, Argentina, is a well-marked *pallescens*.

Exceeding even average *grisescens* in grayness of coloration and with the added

distinction of relatively much grayer crown and forehead are two birds from extreme southeastern Perú. It is impossible to fit them into any of the named forms without straining the characters of such form. Geographically, they stand between *pallescens* of Bolivia and *peruvianus* of central and nothern Perú but they are intermediate between these taxonomically only in a single character, the grayish color of the anterior top of the head. Since they are without a name they may be known as follows.

Tolmomyias sulphurescens inornatus, new subspecies

TYPE from Santo Domingo, southeastern Perú; altitude 6000 feet. No. 149,934, American Museum of Natural History. Adult male collected August 15, 1918, by Harry Watkins.

DIAGNOSIS.—Much duller in color than either *T. s. pallescens* of eastern Bolivia or *T. s. peruvianus* of central and northern Perú, and duller and more grayish even than average *T. s. grisescens* of Paraguay from which it differs further by having the anterior part of the top of the head decidedly more grayish than greenish. This gray also distinguishes *inornatus* from the brighter *pallescens* and is less in extent than it is in *peruvianus*, being confined largely to the crown and forehead and thence passing by regular transition into the green of the back whereas in *peruvianus* the nuchal region also is gray, rather abruptly distinguished from the back.

RANGE.—At present known only from the upper Inambari Valley, southeastern Perú.

DESCRIPTION OF TYPE.—Top of head anteriorly Dark Gull Gray with very slight tinges of dull greenish on the margins of some of the median feathers; back of head and nape progressively more greenish, passing insensibly into the light Krönberg's green of the mantle; rump a little paler. Upper part of lores and a narrow superciliary stripe, not reaching much beyond the posterior line of the orbit, whitish; a dusky spot on the lower part of the lores; below the eye a narrow white lunule; median part of auriculars greenish white; tips broadly dusky, forming a vertical bar; chin dull whitish, with a faint greenish-yellow tinge; belly medially Reed Yellow × Primrose Yellow; chest and flanks duller with a light grayish-green shading; under tail-coverts a little duller than the belly. Wings brownish fuscous; primaries narrowly edged with Mignonette Green; secondaries with margins a little broader and lighter; inner tertials broadly (about half the width of the outer web) margined externally with Sea-foam Yellow. Lesser upper wing-coverts like the back; median coverts sooty, rather broadly tipped with Deep Sea-foam Green; greater series with the outer margins of the feathers narrowly Deep Sea-foam Green; primary-coverts blackish with narrow outer margins of deep green; under wing-coverts Sea-foam Yellow with a small, dark area at the bend of the wing; inner margins of remiges dull whitish. Tail Hair Brown with external margins Yellowish Citrine. Maxilla blackish; mandible pale yellowish; feet light brown. Wing, 69 mm.; tail, 58.25; exposed culmen, 9.5; culmen from base, 14.25; tarsus, 17.75.

A second specimen from the Río Inambari, without given sex, is an excellent match for the type.

A record of "*assimilis*" from San Gaban should be placed under *inornatus*.

Tolmomyias sulphurescens peruvianus (Taczanowski)

Rhynchocyclus peruvianus TACZANOWSKI, 1874, P. Z. S. London, p. 537—Ropaybamba, Junín, Perú; type formerly in Warsaw Mus., now lost.

The central-Peruvian form resembles *inornatus*, just described, less than it does *aequatorialis* of western Ecuador from which it is distinguishable most readily by the slightly narrower yellowish margins of the inner tertials. In *aequatorialis*, these marginal stripes are very broad and frequently reach the shaft while in *peruvianus* they occupy only about half of the outer web, sometimes broadening a little toward the base of the feather but not reaching the shaft in any of the specimens I have examined. Above, both forms have the gray of the head particularly clear and extending well over the back of the head, sometimes over the nape, but *peruvianus* has the green of the back rather darker than that of the western form. Also, *peruvianus* has the throat less whitish than the average of *aequatorialis* (extremes are no different) and the yellow of the belly rather deeper. The wing-bars of *aequatorialis* are broader, lighter in color, and more sharply defined and conspicuous than in the other form. In size, however, *peruvianus* is larger than *aequatorialis*, with wing, ♂, 72.5; ♀, 68.25–69 as against ♂, 62–66; ♀, 62–65: tail, ♂, 63; ♀ 57–58.75 as against ♂, 54–60; ♀, 54–57.

This subspecies ranges northward from the Junín region to eastern Ecuador, being found west of the Huallaga and on the middle Marañón. In view of the confusion that has existed between some forms of the *sulphurescens* and *flavotectus* groups, it is impossible to place earlier records

with any certainty. It is probable that the Huambo record belongs here but this should be confirmed by a reëxamination of the specimen. Berlepsch and Stolzmann noted it as intermediate between *peruvianus* and *aequatorialis*.

The single Junín (Utcuyacu) specimen at hand is slightly duller beneath than the other skins that I assign to this form and in that respect alone stands slightly nearer to *inornatus* than the rest of the series that I have referred to *peruvianus*. The other characters agree throughout the series.

Tolmomyias sulphurescens aequatorialis (Berlepsch and Taczanowski)

Rhynchocyclus peruvianus aequatorialis Berlepsch and Taczanowski, 1883, P. Z. S. London, p. 556—Chimbo, Ecuador (recorded also from Guayaquil, Ecuador, and Lechugal, Perú); ♂; Warsaw Mus.

Seven specimens from Paletillas, Milagros, and Palambla are unhesitatingly referable to the west-Ecuadorian form. The original authors' record from Lechugal completes the data on the distribution of this form in Perú.

Tolmomyias sulphurescens cherriei (Hartert and Goodson)

Rhynchocyclus sulphurescens cherriei Hartert and Goodson, 1917, Novit. Zool., XXIV, p. 414—Cayenne, French Guiana; ♂; Amer. Mus. Nat. Hist. (Rothschild Coll.).

Specimens from French Guiana are smaller than typical *sulphurescens* (wing, ♂, 60–65; tail, 48–54.5) and duller in coloration, being more like *grisescens* of Paraguay though the colors are a little brighter on the under parts while the back and top of the head are darker and the proportions of wing and tail a little different. *T. s. grisescens* has the wing, ♂, 61–68.25; tail, 55.5–60.25.

Two examples from Dutch Guiana agree with the French Guianan birds but three other skins from the same country belong to the *flavotectus* group where they will be found discussed under *T. f. examinatus*.

Two birds from Mt. Roraima, Venezuela, collected by Henry Whitely in 1883, are somewhat larger than the French Guianan specimens and have the top of the head a little darker. In some respects, particularly of size, they approach the birds of Mt. Duida, described as new on a succeeding page, but in general coloration they are closer to *cherriei*. Perhaps the top of the head is more obscure than the average of *cherriei* but one of the Roraiman specimens is not fully adult, the female, which has the darker head of the two birds. Furthermore, Dr. Hellmayr writes me that British Guianan specimens, apparently referable to *cherriei*, are, perhaps, larger than typical birds. I have no British Guianan specimens of the *sulphurescens* group and hence am unable to determine whether they and the Roraiman examples should be placed together apart from typical *cherriei*. A single example from Caicara, on the Orinoco, is very like the French Guianan series in color and near the Roraiman skins in size. For the present I refer all these birds to *cherriei*.

It may be of interest to note that Dr. Hellmayr also writes that, using the specific characters that I have given for the distinction of the *sulphurescens* and *flavotectus* groups, he had no hesitation in assigning eight out of thirty British Guianan specimens in the British Museum to *sulphurescens*, probably *cherriei*, and twenty-two to *examinatus* which I place in the *flavotectus* group.

The frequent correlation between French Guianan forms and the residents of the north bank of the Amazon at Faro, is not shown in the case of the present species and the Faro birds belong to an unnamed subspecies that occupies both banks of the lower Amazon. This form may be known as follows.

Tolmomyias sulphurescens insignis, new subspecies

Type from Rosarinho, Rio Madeira (left bank), Brazil. Adult male collected May 9, 1930, by the Olalla brothers.

Diagnosis.—Nearest to *T. s. cherriei* of French and Dutch Guianas but distinguishable by the very much duller wing-markings, having the wing-bars and the margins of the tertials greenish instead of yellowish, hardly brighter than the external margins of the primaries.

Range.—Both north and south banks of the lower Amazon from the Rio Jamundá at least as far as the western bank of the Rio Negro, north of the Amazon, and from the right bank

of the Rio Madeira to the left bank of the lower Ucayali, south of the Amazon.

DESCRIPTION OF TYPE.—Top of head a little lighter than Dark Ivy Green; back Light Hellebore Green × Calla Green. Upper part of lores dull whitish, continued very narrowly over the eye in a short superciliary stripe; lower part of lores dusky; a whitish lunule below the orbit; auriculars basally dull yellowish green; tips duller and darker, forming a not very conspicuous marking (less conspicuous than in any other conspecies); throat dull Primrose Yellow with the chin a little more whitish; belly Barium Yellow; chest and flanks shaded with grayish green. Remiges dusky brown, margined externally with Mignonette Green, broadest on the tertials; lesser upper wing-coverts green like the back; median series dusky brown and tipped, the greater series externally margined, with light Mignonette Green; primary-coverts blackish with fine external margins of dark green; under wing-coverts Barium Yellow with a brownish area at the base of the under primary-coverts; inner margins of remiges dull whitish. Tail dark brown, externally margined with Mignonette Green. Wing, 62.5 mm.; tail, 50; exposed culmen, 12; culmen from base, 15; tarsus, 16.

REMARKS.—Females not distinguishable from the males.

This form is so well marked that it is surprising it was not distinguished long ago. Some examples that have been identified by authors as *assimilis*, which I place in the *flavotectus* group, belong to *insignis* and confusion with *assimilis* may account for the non-recognition of the present form in the past. Nevertheless, the distinctions between the two forms are very marked, with *assimilis* strongly patterned on the wings and *insignis* dull-winged. Other characters of *assimilis* will be discussed under that form.

The individual variation of *insignis* is slight. An occasional specimen is a little brighter yellow beneath than the rest of the series and a few birds have the top of the head a little darker and more clouded than is usual. One example from Santo Antonio de Guajará is a little brighter in general color, has the wing-bars a little more pronounced, and has the outer margins of the inner tertials somewhat pale (interrupted by darker fault-bars) though far from the clear pale yellow of the other forms of the species. It is the only example so marked.

The range of this subspecies is rather extensive as is noted in a previous paragraph. At present I have only a single specimen from Perú, a female from Sarayacu. Several specimens from Jeberos and Chamicuros belong to the *flavotectus* group and it is doubtful if any of the records from these localities, placed by authors in "*sulphurescens*" and "*sulphurescens assimilis*" belong in the present form. One of two Teffé, Brazil, skins belongs here; the other, in the *flavotectus* group. One Calamá bird belongs here; four are members of the other species, discussed in their proper places.

Passing down the Amazon on the south bank, I have specimens of *insignis* from Borba and Igarapé Auará on the eastern side of the Rio Madeira but none from the Xingú or the Tapajoz where the species may be absent. On the right bank of the Tocantins the species again exists in a form that I am unable to assign to *sulphurescens sulphurescens*, *insignis*, or *cherriei* although it combines their characters to some extent. It may be known as follows.

Tolmomyias sulphurescens mixtus, new subspecies

TYPE from Baião, Rio Tocantins (right bank), Brazil. No. 431,028, American Museum of Natural History. Adult male collected November 30, 1931, by Alfonso Olalla.

DIAGNOSIS.—Nearest to *T. s. inornatus* in the color of the back, being brighter than *insignis* and *cherriei* and darker and duller than *sulphurescens*. Top of the head much as in *sulphurescens*, being brighter and greener than in *insignis* and *cherriei* and with the indications of gray on the sides of the crown of a clearer tone, also as in *sulphurescens*. Under parts about as in *inornatus*, duller than in most of the other subspecies of the group. Wing-markings about as in *cherriei*, stronger, paler, and sharper than in *insignis*, not so broad as in *sulphurescens*, and with the outer margins of the inner tertials narrow but sharply yellowish.

RANGE.—At present known only from the right bank of the Tocantins, eastern Brazil.

DESCRIPTION OF TYPE.—Upper parts Yellowish Oil Green × Calla Green with the forehead and sides of the crown somewhat tinged with Light Neutral Gray. Upper part of lores white, continued over the orbit in a narrow superciliary stripe; a dark spot on the lower part of the lores and a whitish lunule below the eye; auriculars light greenish basally, darker and greener at tips. Chin narrowly whitish; throat, chest, and sides brighter than Vetiver Green; belly a little

brighter than Light Chalcedony Yellow; flanks like sides. Wings dusky brown, with outer margins of primaries and secondaries Light Hellebore Green; inner tertials with margins broader (about one-third of the width of the outer web) and much paler, Sea-foam Yellow; lesser upper wing-coverts like the back; median series tipped (moderately sharply) with Deep Sea-foam Green; greater series with external margins narrowly Chartreuse Yellow; primary-coverts dusky brown with very narrow outer margins of dark green; under wing-coverts Pale Chalcedony Yellow with a brownish area basad from the under primary-coverts; inner margins of remiges dull whitish. Tail dusky brown with outer margins the color of the back. Maxilla blackish; mandible whitish; feet dull brown. Wing, 64 mm.; tail, 51; exposed culmen, 9; culmen from base, 13; tarsus, 15.75.

REMARKS.—Female unknown.

It may be noted that the specimens from Alto de Alegria, Tury-assú, Maranhão, recorded by Hellmayr (1929, Field Mus. Nat. Hist. Publ., Zool. Ser., XII, p. 319) as intermediate between *sulphurescens* and *assimilis* (auctorum) belong to *mixtus*. My only specimen from Pará, not far from Tury-assú, belongs to the *flavotectus* group as do the two birds from Tury-assú assigned by Hellmayr (*l. c.*) to *T. s. assimilis*.

Six birds from Mt. Duida, Venezuela, belonging to the *sulphurescens* group (five from other, lower points on the mountain belong to the *flavotectus* group) differ sufficiently from all other known forms to deserve separate recognition. Their description follows.

Tolmomyias sulphurescens duidae, new subspecies

TYPE from Caño Seco, Mt. Duida, Venezuela; altitude 2250 feet. No. 271,203, American Museum of Natural History. Adult male collected December 26, 1928, by the Olalla brothers.

DIAGNOSIS.—Somewhat resembling *T. s. cherriei* of French Guiana and adjacent regions west to the middle Orinoco, but distinctly larger (wing, 66.25–68 mm.; tail, 55–60), back deeper green, top of head considerably darker and grayer, and yellow of under parts slightly more greenish in tone.

RANGE.—Upper Tropical Zone of Mt. Duida, Venezuela.

DESCRIPTION OF TYPE.—Top of head Deep Neutral Gray, approaching Neutral Gray on the forehead and with some greenish edgings on the median feathers; back dark Yellowish Oil Green. Lores whitish above, continued over the eye in a narrow superciliary stripe; lower part of lores dusky; a whitish lunule below the eye; basal part of auriculars Krönberg's Green, tips dusky; chin ashy; throat yellowish Olive-Buff; chest pale Mignonette Green, passing into Krönberg's Green on the sides; belly light Reed Yellow; flanks tinged with greenish. Remiges blackish brown, the primaries and secondaries margined with Serpentine Green; the tertials with broader margins, near Sea-foam Yellow on the inner ones; lesser upper wing-coverts like the back; median series rather broadly tipped and greater series margined externally with Deep Sea-foam Green; primary-coverts blackish with narrow external margins dark green; under wing-coverts Primrose Yellow with a large brownish area near the bend of the wing; inner margins of remiges Marguerite Yellow. Tail dusky brown with external margins the color of the back. Maxilla (in dried skin) black; mandible whitish; feet dull brown. Wing, 67 mm.; tail, 55; exposed culmen, 10; culmen from base, 15; tarsus, 17.25.

REMARKS.—Females like the males.

There is some variation in the color of the top of the head and the back with three examples like the type and three darker. There also is variation in the markings on the wings but in no specimen are the wing-bars sharp and clear as they are in *cherriei*. One male bird has the wing-bars decidedly greenish as in *insignis* but the pale stripe on the outer margin of the inner tertials is sharper and broader than that of the type. Another male has the stripe on the tertials rather inconspicuous, though paler than the outer margins of the primaries, but the wing-bars are well marked. On the whole, the features are relatively uniform.

The two birds from Mt. Roraima, discussed under *cherriei*, are, in a sense, intermediate between that form and the present one but until a more adequate series is available they are assigned to *cherriei*.

Giving attention to the birds of the northern coast of South America, I believe that *berlepschi*, described from the Island of Trinidad, is separable from *exortivus* of Santa Marta, Colombia, and the northern portions of Venezuela. It has darker green upper parts, with the top of the head more obscured by dusky centers on the feathers, the throat and chest are more clouded by a faint olive tinge, and the yellow of the belly averages paler and not so clear as in the mainland birds. In general, *berlepschi* resembles typical *sulphurescens* more than

exortivus though its under parts are not as deeply yellow as in the south-Brazilian form.

I can find no differences in the series of *exortivus* from northern Venezuela (Cumaná and Caracas regions) and Santa Martan birds. Presumably a single form occupies this entire northern region. One Orinoco River specimen agrees better with *cherriei* where it is discussed.

The Central American forms, *cinereiceps* and *flavo-olivaceus*, appear to show no need of further revision. The Colombian form, *asemus*, is not so regular. The specimens from the western part of the country, Jiménez, Dabeiba, Cali, Río Frío, Chicoral, and Miraflores, are large (♂, wing, 67–69; tail, 57–59), strongly ashy on the throat and suffused with ashy on the chest, and relatively dull yellow on the belly. On the other hand, the more eastern examples (Malena, Buena Vista, Villavicencio, and Opon) are smaller (♂, wing, 64–66; tail, 52.5–54.5) and brighter on the under parts, without any definite grayish tinge below the upper throat. There is some resemblance to *cherriei* but the colors are brighter though the cap is grayer and the pale stripe on the outer margins of the inner tertials is broader and clearer. On the other hand, the top of the head is much too dark and gray for inclusion in *exortivus*. A Malena specimen shows some approach toward the characters of the western birds and one example from Buena Vista comes very close to them in color though not in size. Nevertheless, the series as a whole is quite distinct from *asemus* as was found by Chapman who assigned the eastern birds in part to "*assimilis*," and, in part, to *exortivus* where they now appear to be quite out of place. Since these east-Colombian birds are without a distinctive name they may be known as follows.

Tolmomyias sulphurescens confusus, new subspecies

TYPE from Villavicencio, eastern Andes, Colombia; altitude 1600 feet. No. 122,175, American Museum of Natural History. Adult male collected March 13, 1913, by Frank M. Chapman, George K. Cherrie, and others; original No. 6583.

DIAGNOSIS.—Most nearly resembling *T. s. duidae* of Mt. Duida, Venezuela, and *T. s. asemus* of western Colombia but smaller than either. Further differs from *duidae* by clearer, sharper wing-markings, stronger yellowish throat, duller (more yellowish) green back and wing-edgings, and deeper (less greenish) yellow belly. From *asemus*, it is also distinguished by yellower throat, deeper yellow under parts, and darker upper parts.

RANGE.—The eastern side of the eastern Andes of Colombia and northeastern Ecuador, and at least the middle portions of the Magdalena Valley.

DESCRIPTION OF TYPE.—Top of head near Deep Mouse Gray with suggestions of dusky subterminal areas on the feathers; back dark Serpentine Green × Yellowish Olive. Upper part of lores, a small superciliary stripe, and a subocular lunule whitish; a dusky spot on lower part of lores; auriculars dull yellowish green at base, dusky at tip; chin very narrowly whitish; throat Chartreuse Yellow × Olive-Buff; chest suffused with pale Light Yellowish Olive; belly Barium Yellow. Remiges fuscous brown with external margins light Yellowish Oil Green, becoming nearly Oil Yellow on the inner secondaries while the inner tertials are bordered externally by a broader stripe of yellowish white; lesser upper wing-coverts like the back; median series dusky brown with relatively broad and well-defined tips of Light Chalcedony Yellow; greater series with narrow outer margins yellowish green basally and Light Chalcedony Yellow toward the tips; primary-coverts dusky with dull, dark green outer margins; under wing-coverts near Barium Yellow with a brownish patch near the bend of the wing; inner margins of remiges yellowish white. Tail fuscous brown with outer margins Yellowish Oil Green. Maxilla (in dried skin) black; mandible whitish; feet brownish. Wing, 64 mm.; tail, 52.5; exposed culmen, 11; culmen from base, 13.5; tarsus, 16.

REMARKS.—Females not certainly distinguishable from the males.

As intimated in an introductory paragraph, the birds I have named here are not perfectly uniform. The specimen from Opon is definitely brighter green on the back than the rest of the series, agreeing in that respect with *exortivus* of the Santa Marta region, but the top of the head is very definitely grayish which it is not in *exortivus*, although the gray has a little more than average admixture of green for *confusus*. A bird from Malena, not far upstream from Opon, is a step nearer the type but still not typical. One skin from Buena Vista approaches *asemus* in coloration but is unusually dark above, particularly on the top of the head and is like the rest of *confusus* in size. Perhaps the near-

est approach to the average characters of *confusus* is found in *duidae* but the clear, dark green of the back of *duidae* is not to be matched in the Colombian birds which have the edges of the remiges brighter and the gray tips of the crown emphasized by dusky subterminal areas, not found in *duidae*.

The following key to the subspecies of *T. sulphurescens* is presented with a full realization of its shortcomings. It will not prove very effective in identifying single specimens of many of the forms, some of which approach each other rather closely, though fortunately such approach is most pronounced in the cases of subspecies with rather widely separated ranges. The key may serve, therefore, rather as an epitome of the average characters of the different forms than as an aid to the identification of specimens.

KEY TO THE SUBSPECIES OF *Tolmomyias sulphurescens*

1.—Throat and chest extensively ashy.....2.
Chin sometimes whitish; throat and chest more yellowish.....3.
2.—Back brighter green; chest more broadly ashy; size smaller; wing-markings duller .....*cinereiceps*.
Back darker and duller; chest with some yellow flammulations; size larger; wing-markings sharper.....*asemus*.
3.—Top of head gray, without definite green.. .....15.
Top of head with some greenish admixture. .....4.
4.—Top of head predominantly green.....5.
Top of head with extensive gray or dusky admixture.....13.
5.—Colors brighter both above and below...6.
Colors darker or duller, above or below or both.....8.
6.—Back more golden; belly relatively deep yellow.....*flavo-olivaceus*.
Back less golden; belly variable.....7.
7.—Chest faintly more heavily shaded..... .....*pallescens*.
Chest faintly less heavily shaded..*exortivus*.
8.—Belly deeper yellow; back darker green; chin whitish.....*sulphurescens*.
Belly paler and duller; back and chin variable.....9.
9.—Relatively brighter.....*berlepschi*.
Relatively duller.....10.
10.—Wing-markings greenish, inconspicuous.... .....*insignis*.
Wing-markings yellow, conspicuous....11.
11.—Top of head clearer green, medially not very different from back.....*mixtus*.
Top of head duller, usually with some dusky admixture.....12.
12.—Paler and duller.....*grisescens*.
Darker; belly clearer yellow.....*cherriei*.
13.—Back deeper, clear green.....*duidae*.
Back brighter or duller green.....14.
14.—Colors brighter.....*confusus*.
Colors duller.....*inornatus*.
15.—Darker; chest slightly more tinged with olive; outer margin of inner tertials narrower, about half the width of the outer web.....*peruvianus*.
Lighter; chest clearer; tertial stripe wider, nearly or quite reaching the shaft..... .....*aequatorialis*.

Tolmomyias flavotectus flavotectus (Hartert)

Rhynchcyclous (sic) *marginatus* (not *Muscicapa marginata* PELZELN) LAWRENCE, 1869 (Apr.), Proc. Acad. Nat. Sci. Phila. for Dec., 1868, p. 429—Lion Hill, near Aspinwall, Panamá; ♂, ♀; cotypes in Amer. Mus. Nat. Hist.

Rhynchocyclus megacephala flavotectus HARTERT, 1902, Novit. Zool., IX, p. 608—San Javier, Ecuador; ♀; Amer. Mus, Nat. Hist. (Rothschild Coll.).

This form of the *flavotectus* group follows the corresponding western members of the *sulphurescens* group, *cinereiceps* and *asemus*, in the possession of grayish throat and chest, but the range is more or less continuous from Costa Rica to northwestern Ecuador whereas *sulphurescens flavo-olivaceus* is interposed between the two mentioned members of the *sulphurescens* group. I can find no recognizable differences between Costa Rican and Ecuadorian examples of the present form.

Two birds from Puerto Valdivia, Colombia, are not typical. One is young, with the deep buff wing-bars of immaturity, and both have the throat more yellowish than grayish and have the top of the head greener than the typical birds. In addition, the wing-speculum is obsolete in the adult though well-marked in the young example. Both specimens are as brightly green on the back as *flavotectus* which is too bright for any of the other forms of the species that occur north of the Amazon. Possibly there is a separable form here but I prefer not to name it until more material confirms the characters noted.

Tolmomyias flavotectus assimilis (Pelzeln)

Rhynchocyclus assimilis Pelzeln, 1868, Orn. Bras., II, p. 181—part; Borba, Brazil; cotypes in Vienna Mus.

I am handicapped, somewhat, in the study of the present form by the absence of any specimens of the *flavotectus* group from the neighborhood of Borba, the type locality of *assimilis*, and by the fact that commentators on *assimilis* have been unaware that both the *flavotectus* and *sulphurescens* groups occur on the south bank of the Amazon. The resulting confusion has made it difficult to sort out the various comments and apply them to the proper birds.

In the first place, Pelzeln described his *assimilis* as having the margins of the wing-coverts and the innermost remiges nearly white, as insisted upon by Hellmayr [1927, Field Mus. Nat. Hist. Publ., Zool. Ser., XIII (5), p. 275, footnote b] in restricting the assignment of the name to Pelzeln's Borba specimens as distinct from Rio Negro examples. This, together with the relatively large measurements of the Borba birds as given by Pelzeln ("Wing, 2″ 6‴") permits the assignment of the name *assimilis* to the local resident of the *flavotectus* group since the Borba examples of the *sulphurescens* group are smaller and have the wing-bars and the outer margin of the inner tertials quite greenish and not at all whitish. Accordingly I have described *T. s. insignis* on a previous page. There remains, however, another complication with regard to *assimilis*.

Hellmayr (1910, Novit. Zool., XVII, p. 297) compares certain Calamá specimens (now before me) with Pelzeln's cotypes of *assimilis* and says that he found them in agreement in comparison with *sulphurescens* of southeastern Brazil. In a recent letter to me he adds that the cotypes had the back duller greenish than the Calamá specimens, the chest paler, less tinged with grayish green, and the abdomen markedly paler yellow, differences which he had thought might be due to the greater age of the cotypes. However, specimens at hand from Teffé and the Rio Tapajoz, on both sides of Borba, are still more recently collected than the Calamá specimens and show the same dull back and pale abdomen ascribed to the cotypes of *assimilis*. In addition, the wing-bars, outer margin of the innermost tertial, and throat are relatively whitish as described by Pelzeln whereas these parts are yellower in the Calamá specimens. Consequently I have no hesitation in restricting the name *assimilis* to the birds found along the south bank of the Amazon from Teffé to the Rio Tapajoz and describing the yellower birds of the interior as a separable form.

The western limit of the range of *assimilis* is uncertain. I have no specimens from anywhere between Teffé and the Peruvian border and Peruvian specimens are distinguishable as discussed below.

No earlier Peruvian records are assignable to *assimilis* with any certainty.

Birds from north of the Amazon in northeastern Perú and eastern Ecuador are much like true *assimilis* and at first, in spite of the peculiarity of distribution, I was inclined to place them in this form, but I believe they are distinct enough to bear recognition as a separable subspecies.

Tolmomyias flavotectus obscuriceps, new subspecies

Type from the lower Río Suno, eastern Ecuador. No. 184,084, American Museum of Natural History. Adult male collected March 12, 1924, by Carlos Olalla and sons.

Diagnosis.—Differs from *T. f. assimilis* of the south bank of the lower Amazon by duller cap (darker and sometimes faintly brownish instead of clear gray), darker and duller green back, and yellower, less whitish chin. Differs from *T. f. neglectus* of the Rio Negro, Brazil, by duller cap (with less evident or no greenish subterminal area on the feathers) and with the pale spots forming the wing-bars rather broader and stronger yellow.

Range.—Northeastern Perú, north of the Amazon, eastern Ecuador, and probably southeastern Colombia.

Description of Type.—Top of the head Deep Mouse Gray, the terminal margins of the feathers clearer gray, and the subterminal areas Dark Mouse Gray; back dark Krönberg's Green. Lores and narrow eye-ring whitish; auriculars dull Vetiver Green, paler at base and darker and grayer at tips; chin Marguerite Yellow; throat dull Primrose Yellow × Chartreuse Yellow; breast a little darker and duller, passing into dull, light Krönberg's Green on the sides; middle of belly Reed Yellow; flanks

darker, washed with dull greenish. Wings blackish; primaries, except outermost, narrowly margined externally with Roman Green; a whitish speculum on the 7th to 5th primaries on the outer webs beyond the tips of the primary-coverts; secondaries more broadly margined with Roman Green; inner tertials with over half of the outer web Sea-foam Yellow, more greenish on extreme outer margin; lesser upper wing-coverts like the back; median and greater series blackish with broad tips of the outer webs Primrose Yellow, continued a little basad on the greater series; primary-coverts blackish, inconspicuously margined externally with very dark green; under wing-coverts Marguerite Yellow, Primrose Yellow along carpal border, and with a dusky patch at the base of the under primary-coverts; inner margins of remiges narrowly yellowish white. Tail dark brown with outer edges a little brighter green than the back. Maxilla blackish (in dried skin); mandible light brown, whitish basally; feet dull brownish. Wing, 65.5 mm.; tail, 49.5; exposed culmen, 11; culmen from base, 14; tarsus, 17.

REMARKS.—Females like the males or perhaps a little smaller on average.

In a sense this form is intermediate between *assimilis* and *neglectus* but the top of the head is duller than in either, without the clear gray of *assimilis* or the greenish tones of *neglectus*, and the range is distinct from that of either.

A bird from Florencia, southeastern Colombia, is referred here with a query. It is darker above and deeper yellow below than the Ecuadorian and Peruvian birds but agrees best with them in comparison with the other subspecies.

Tolmomyias flavotectus clarus, new subspecies

TYPE from Río Seco, west of Moyobamba, northern Perú; altitude 3000 feet. No. 234,801, American Museum of Natural History. Adult male collected July 8, 1925, by Harry Watkins; original No. 9304.

DIAGNOSIS.—Differs from *T. f. assimilis* of the south bank of the Amazon (Teffé to the left bank of the Rio Tapajoz) by brighter coloration, with the back clearer and yellower green and the under parts much brighter yellow; wing-bars and pale stripe on the inner tertials yellower, less whitish; bill averaging broader.

RANGE.—Tropical Zone of northern Perú south of the Marañón on both sides of the lower Huallaga, thence ranging past the upper Ucayali to southeastern Perú.

DESCRIPTION OF TYPE.—Top of head light Slate Gray with not very sharply defined dark centers on the feathers; forehead a little paler; back Yellowish Oil Green × Olive Green. Lores whitish with a narrow whitish line extending forward to the nostrils; a narrow eye-ring white; rest of sides of the head rather uniform dull Mignonette Green; chin narrowly Sea-foam Yellow; throat Light Chalcedony Yellow; sides of breast Mignonette Green; middle of the breast similar but with some brighter yellow margins; belly medially pale Citron Yellow; under tail-coverts a little paler; flanks shaded with pale Mignonette Green. Remiges blackish with light Olive Green outer margins on primaries, obsolete on the outermost (10th) primary, a little broader edges of brighter color, approaching Chartreuse Yellow on the inner feathers and outer tertials; inner tertials with a broad stripe of Sea-foam Yellow on the outer web; a Sea-foam Yellow speculum at the bases of primaries 7 to 5, suggested on 8, and reaching at most 5 mm. beyond the tips of the primary-coverts; lesser upper wing-coverts like the back; median and greater series dull blackish with broad tips on the outer webs Light Chalcedony Yellow, the color continued narrowly basad along the outer margins of the greater series; tips of inner webs of median series greenish, not well defined; primary-coverts dusky with inconspicuous, dark green outer margins; under wing-coverts Primrose Yellow with a small, dark patch near the bend of the wing; inner margins of the remiges narrowly pale yellowish. Tail Hair Brown with outer margins light Mignonette Green. Maxilla black; mandible light brownish, paler at base; feet dark brownish. Wing, 71.5 mm.; tail, 56; exposed culmen, 12.5; culmen from base, 15.25; tarsus, 17.5.

REMARKS.—Female like the male in color but smaller; wing, 63.5–68 (♂, 70–71.5); tail, 48.5–54 (♂, 56–58.25). The bill may average a little wider than in the other sex.

Young birds are characterized, like those of the other conspecies, by the strong buffy color of the wing-bars, between Colonial Buff and Warm Buff. The under tail-coverts are tinged with buff, the top of the head is tinged with greenish at the tips of the feathers, and the rest of the plumage is often duller than that of the adults but quite similar in general respects.

Four birds from the upper end of the Ucayali, two from Santa Rosa and two from Lagarto, appear to belong here rather than with *assimilis* although one of the two specimens from Santa Rosa, west of the river, is very like *assimilis* at its brightest, except for the still brighter yellow wing-markings which agree with *clarus*. The other three birds are closer to *clarus* in various respects.

A single specimen from Astillero, southeastern Perú, is a little closer to the present form than to the following toward which its characters trend.

It is impossible to assign previous records from Perú to this or other forms of *flavotectus* or *sulphurescens* without examination of the critical specimens.

Tolmomyias flavotectus calamae, new subspecies

TYPE from Calamá, upper Rio Madeira (right bank), Brazil. No. 498,316, American Museum of Natural History (Rothschild Coll.). Adult male collected August 8, 1907, by W. Hoffmanns; original No. 354.

DIAGNOSIS.—Similar to *R. f. clarus* of northern Perú south of the Marañón, but top of head darker gray with the dusky centers of the feathers blacker; lower under parts deeper yellow; wing-speculum and wing-bars more sharply outlined; flanks darker.

RANGE.—Upper Rio Madeira and northern Matto Grosso, Brazil, westward across northern Bolivia at least to the Cochabamba region.

DESCRIPTION OF TYPE.—Description as for *clarus* (q. v.) except as follows. Top of head near Slate Color with the dark centers of the feathers blackish; middle of belly Citron Yellow × dull Citron Green; wing-bars Light Chalcedony Yellow × Barium Yellow; speculum sharply defined and 6 mm. at maximum extension beyond primary-coverts; under wing-coverts light Citron Yellow. Wing, 71.5 mm.; tail, 56; exposed culmen, 12.5; culmen from base, 15.25; tarsus, 17.5.

REMARKS.—Female like the male in color but of smaller size. Wing, 62–67 (♂, 68–69); tail, 48–52.5 (♂, 50–54).

Immature birds as described for *clarus*, but colors brighter.

There is good uniformity in the exceptionally bright ventral coloration of this form in all the birds from Calamá and Matto Grosso. The north-Bolivian skins, also, are brighter than the Peruvian skins although their average is a trifle duller than the topotypes, as is to be expected. With a series of sixteen birds from Perú and thirteen from Bolivia and central Brazil, the distinction of the two forms is obvious in every case since the immature examples of *calamae* are brighter than the same age of *clarus*.

Tolmomyias flavotectus examinatus (Chubb)

Rhynchocyclus sulphurescens examinatus CHUBB, 1920, Bull. Brit. Orn. Club, XL, p. 168—Bartica Grove, British Guiana; British Mus.

Original comparison was made by Chubb with *cherriei* of French Guiana, a subspecies of *sulphurescens*, and part of the original series presumably included some specimens of true *cherriei*. Nevertheless, the author's description of *examinatus* as darker than the Cayenne form holds good, together with the specific distinctions between the two groups. Both species occur in all three of the Guianas though *cherriei* is the commoner form in French Guiana and *examinatus* in British Guiana, judging by the proportion of specimens noted.

The top of the head in *examinatus* is greener than in any of the other forms of *flavotectus* and, even in dark examples, the head is dark green rather than grayish. Specimens from Faro, on the north bank of the Amazon, agree in this respect and must be referred to *examinatus*.

Two specimens from the Caura, in Venezuela, and a single example from Maipures, upper Orinoco, diverge from the Guiana birds by reason of somewhat more pronounced gray on the top of the head, and it is difficult to place them exactly. Mt. Duida, Río Cassiquiare, and Rio Negro (Brazil) specimens are even more definitely and regularly marked by dark heads and average darker backs and appear to deserve recognition as a distinct form which may be known as follows.

Tolmomyias flavotectus neglectus, new subspecies

TYPE from San Gabriel, upper Rio Negro (left bank), Brazil. No. 276,162, American Museum of Natural History. Adult male collected September 16, 1928, by the Olalla brothers.

DIAGNOSIS.—Similar to *T. f. examinatus* of British Guiana but with the upper parts averaging darker, the top of the head, in particular, darker and grayer, in greater contrast to the back; under parts averaging more strongly yellow. Compared with *clarus* of northern Perú, the upper parts are darker and duller and the under parts duller yellow. Compared with *assimilis* of the south bank of the Amazon, the under parts are brighter yellow and the upper parts darker.

RANGE.—Right bank of the Rio Negro, Brazil, from near its mouth to the Rio Uaupés and both banks of the upper Negro, thence northward on both banks of the Cassiquiare to the lower elevations of Mt. Duida, Venezuela; ap-

parently westward to extreme eastern Colombia (Florencia).

DESCRIPTION OF TYPE.—Top of head Iron Gray with inconspicuous greenish color subterminally on the feathers, all but concealed by the tips; back dark Krönberg's Green. Lores and a narrow eye-ring whitish; auriculars near Vetiver Green; chin whitish; throat Chartreuse Yellow × Sea-foam Yellow; sides of breast dark Vetiver Green with a slight tinge of the same across the chest; belly Light Chalcedony Yellow × Barium Yellow; flanks slightly shaded with greenish. Remiges blackish with very narrow green margins on the primaries (except the outermost), broader and somewhat brighter ones on the secondaries, and with about half of the outer web of the inner tertial occupied by a broad, whitish stripe; a whitish speculum on the outer webs of the 7th to 5th primaries, extending over 5 mm. beyond the tips of the primary-coverts; lesser upper wing-coverts like the back; median and greater series blackish with the tips of the outer webs Pale Chalcedony Yellow, extended narrowly basad on the greater series; tips of inner webs of median series inconspicuously dull greenish; primary-coverts blackish with outer webs narrowly and very inconspicuously dark green; under wing-coverts Primrose Yellow with a dark patch near the bend of the wing; inner margins of remiges pale yellowish. Tail blackish brown with outer margins the color of the back. Maxilla (in dried skin) black; mandible pale brownish at base, a little darker at tip; feet dusky brown. Wing, 66 mm.; tail, 50; exposed culmen, 10.25; culmen from base, 14; tarsus, 17.

REMARKS.—Females colored like the males or with even darker top of the head; size averaging smaller. Wing, 58.5–65.5 (♂, 62.5–67.25); tail, 45–49 (♂, 47–52).

As noted under *examinatus*, two specimens from the Río Caura and one from Maipures, upper Río Orinoco, Venezuela, are intermediate between *neglectus* and *examinatus*, but I have placed them with the present form until more material is available to help in determining their position more accurately.

The series of *neglectus* contains a few specimens that approach the *sulphurescens* group in one or two particulars, having the 10th (outermost) primary a little shorter than the 4th or having the wing-speculum less pronounced than usual. These specimens, however, are the exception, not the rule, and the affinity of the form with the *flavotectus* group is certain.

Specimens from the Tocantins, the Pará district, and northern Maranhão are more strongly grayish on the anterior under parts and the top of the head and deserve recognition as follows.

Tolmomyias flavotectus paraensis, new subspecies

TYPE from Utinga, near Pará, Brazil. No. 148,553, American Museum of Natural History. Adult male collected May 8, 1915, by George K. Cherrie; original No. 19,047.

DIAGNOSIS.—Differs from *T. f. examinatus* of the Guianas and Faro, Brazil, by more grayish chest, sides, and top of the head. Differs from *T. f. assimilis* of the south bank of the lower Amazon by much grayer chest and sides but with more greenish tinge on the cap. Differs from *T. f. neglectus* of the Rio Negro, Brazil, by whiter throat, grayer chest and sides, and paler yellow belly; back a little brighter green.

RANGE.—Eastern Brazil from the left bank of the Tocantins through the Pará district to northern Maranhão.

DESCRIPTION OF TYPE.—Top of head with appearance of Dark Olive Gray, having the tips of the feathers a little lighter and clearer gray and the subterminal portions tinged with Krönberg's Green; back Krönberg's Green × Roman Green. Lores and narrow eye-ring whitish; auriculars Deep Olive Gray, darker at tips; chin whitish; throat pale Marguerite Yellow; chest grayish Olive Buff, indistinctly streaked with yellow and passing into Deep Grayish Olive on the sides; belly Primrose Yellow; flanks tinged with grayish olive. Wings blackish with primaries (except outermost) narrowly edged with light Serpentine Green and with a whitish speculum on the 6th and 5th feathers (suggested on the 7th) just beyond the tips of the primary-coverts; secondaries with margins broader; inner tertials with outer margins very broad and, except for extreme outer edge, pale yellowish white; under wing-coverts Marguerite Yellow, deeper yellow near bend of the wing and with a grayish-brown patch at the base of the under primary-coverts; inner margins of remiges pale yellow; tail dusky brown with outer margins Serpentine Green. Maxilla (in dried skin) blackish; mandible dusky brown, paler at base; feet blackish. Wing, 65 mm.; tail, 52; exposed culmen, 11; culmen from base, 15.5; tarsus, 17.

REMARKS.—Female unknown.

This subspecies cannot well be united with any of the other forms. The upper parts are most like those of *neglectus* but the under parts go beyond the extreme of *examinatus* in the opposite direction from that taken by *neglectus*. There is no other form toward which it might show intermediacy from either of these northern subspecies.

Two of the birds from Tury-assú, Maranhão, recorded by Hellmayr (1929,

Field Mus. Nat. Hist. Publ., Zool. Ser., XII, p. 319) as *T. sulphurescens assimilis* belong here.

Tolmomyias poliocephalus poliocephalus (Taczanowski)

Rhynchocyclus poliocephalus TACZANOWSKI, 1884, Orn. Pérou, II, p. 285—Nauta, Perú; Frankfort Mus. (Berlepsch Coll.).

Rhynchocyclus klagesi RIDGWAY, 1906, Proc. Biol. Soc. Wash., XIX, p. 298—Maripa, Venezuela; ♀; Amer. Mus. Nat. Hist.

The present species is not amenable to very satisfactory subdivision owing to its variability. More than a hundred specimens are at hand from all parts of the range but, although certain trends are apparent in different regions, there is too much overlapping of characters to permit the recognition of many subspecies.

T. p. sclateri, described from Manaos, Brazil, is recognizable as a dull form with somewhat whitish throat, often slightly grayish-tinged chest, relatively dull yellow belly, and relatively dark green back and dark gray cap. It ranges from Manaos eastward along the north bank of the lower Amazon, northward to the Guianas, and across the mouth of the Amazon to the Pará district. Specimens from the Tocantins and the Xingú average a little brighter in general color and examples from the Tapajoz and the Madeira perhaps a little more so but all have the throat whitish and fit into the series of *sclateri* more easily than they can be separated from it. Their characters trend toward those of the typical form.

True *poliocephalus* was named from a specimen supposedly collected at Nauta, although it may have come from across the Amazon opposite the town of that name; part of the collection obtained by Bartlett at that place was so obtained. Nevertheless, I can find no positive distinctions between birds from Puerto Indiana, north of the Amazon, and from Xeberos and the Ucayali, south of it. Specimens from the mouth of the Curaray and the Río Napo, tend to show somewhat brighter green on the back and deeper yellow on the under parts than Peruvian birds but the difference is not constant and needs confirmation. Skins from the Rio Negro, Brazil, on both banks a little distance above Manaos and on up the river to the Uaupés, the Cassiquiare, the lower slopes of Mt. Duida, and the upper Orinoco and Caura rivers in Venezuela, are so like the Colombian-Ecuadorian-Peruvian series that I place them in *poliocephalus* instead of *sclateri*. They are variable in depth of color, particularly of the upper parts, but, with a very few exceptions, all have the under parts relatively deep yellow with no more than the chin sometimes narrowly whitish as it is in a few examples from Perú, Ecuador, and Colombia. The name *klagesi*, applied to a skin from the Río Caura, Venezuela, would be applicable to a Venezuelan-Rio Negro form if separable, but I am unable to recognize it. Birds from Teffé, Brazil, are quite like Peruvian specimens.

Records of *poliocephalus* from Perú are from Nauta, Pebas, Chayavitas, and Cosñipata.

Tolmomyias flaviventris viridiceps (Sclater and Salvin)

Rhynchocyclus viridiceps SCLATER AND SALVIN, 1873, P. Z. S. London, p. 280—Pebas, Perú; British Mus.

Rhynchocyclus flaviventer borbae HELLMAYR, 1903, Verh. Zool. Bot. Ges. Wien, LIII, p. 208—Borba, Rio Madeira, Brazil; ♂, ♀; cotypes in Vienna Mus.

After careful examination of six birds from the right bank of the lower Rio Madeira, one from the left bank, one from Teffé, three from northeastern Perú, north of the Amazon, and ten from eastern Ecuador, I am reluctantly obliged to consider *borbae* as a synonym of *viridiceps*. The combined series is uniform within certain limits of individual variation reached by specimens from all parts of the range. Added to the series, a bird from southeastern Colombia (Florencia) and one from the Ucayali (Lagarto) fit well into the picture and obviously belong to the same form.

On the other hand, ten skins from near Moyobamba, the Chanchamayo region, and southeastern Perú are slightly, though recognizably, brighter in general coloration, with the lores more strongly yellowish, at

least on average, and agree better with a Bolivian specimen which represents a more recently described form discussed below. Likewise, two examples from the right bank of the Rio Negro, Brazil, a short distance above the mouth, belong to *viridiceps*.

Judging by the material at hand, the only record from Perú that may be assigned to *viridiceps* is from Pebas.

One specimen from the mouth of the Río Santiago is very peculiar and quite unlike a veritable *viridiceps* from the same locality. It is immature and some of its peculiarities may be due to this fact although other immature examples from other localities are not the same. The general color of the back is duller green than in the normal bird of this subspecies and the top of the head is even darker and slightly grayish in tone. The wing-bars are a little broader, paler, and distinctly better outlined than in the great majority of specimens of all of the subspecies, suggesting *flavotectus*, and there is a poorly developed speculum beyond the tips of the primary-coverts, also suggesting that species. The wing-bars have a very slight suggestion of deep buff at the very ends of the individual pale tips of the component feathers but there is none of the rich orange-buff color found in immature members of the *flavotectus* group. The whole throat and chest are strongly brownish buff or dull buffy brown and the belly is pale yellow. The mandible is uniformly pale unlike that of the other *viridiceps*. The measurements agree with *viridiceps*. For the present I am unable to give it a name.

Tolmomyias flaviventris subsimilis Carriker

Tolmomyias flaviventris subsimilis Carriker, 1935 (Oct. 10), Proc. Acad. Nat. Sci. Phila., LXXXVII, p. 334—Santa Ana, Río Coroico, Bolivia; ♂; Acad. Nat. Sci. Phila.

A specimen from Guanay, northwestern Bolivia, is nearly topotypical of this subspecies which is intermediate between *viridiceps* and true *flaviventris* though nearer *viridiceps*. Compared with *viridiceps* the upper parts are a yellower green and the lores are more strongly yellowish, while the under parts are deeper yellow with more suffusion of buff on the throat and chest. The wing-markings are the same, rarely decidedly yellowish and often quite greenish and inconspicuous, and the mandible is dusky or slaty, except at the base, exactly as in *viridiceps*. The typical form from southeastern Brazil is much more yellowish green above, with more deeply yellow lores and still more buff or isabelline color on the chest and, in addition, has the mandible whitish and the whole bill relatively small, the smallest of all of the forms of this species.

A single specimen from Marmellos, about half way down the left bank of the Madeira, is closer to this form than to *viridiceps*, but it is in rather worn condition and may be faded. On the other hand, a skin from Tapirapoan, Matto Grosso, is near enough to the extreme of variation in *flaviventris*, including the pale mandible, that I place it with the typical subspecies for the present. The Marmellos bird I transfer to *subsimilis* for the present.

I have attempted to justify the inclusion of this form in "*borbae*" since that name is older and was applied to a supposed form said to be intermediate between *viridiceps* and *flaviventris*, but the present series is recognizably distinct from Borba (and Igarapé Auará) skins which, in turn, are inseparable from *viridiceps* as discussed under this last mentioned form.

Records from Perú that probably belong to *subsimilis* are from Yurimaguas and La Merced.

Among the series of true *flaviventris*, two specimens from Goyaz are to be noted as clearer yellow on the chest than the remainder although the upper parts are not distinguishable. Maranhão birds are typical *flaviventris*. Farther west, on the Tocantins, the Xingú, and the Tapajoz, and in the vicinity of Villa Bella Imperatríz, the birds are neither *flaviventris* nor *viridiceps* but occupy an intermediate position that is still quite distinct from that occupied by *subsimilis*. Skins from Faro are like them and, strangely, specimens from the foot of Mt. Duida show the same characteristics. This population is deserving of a separate name and may be known as follows.

Tolmomyias flaviventris dissors, new subspecies

TYPE from Faro, Rio Jamundá, Brazil. No. 284,246, American Museum of Natural History. Adult male collected December 1, 1930, by the Olalla brothers.

DIAGNOSIS.—Differs from *T. f. flaviventris* of Bahia by somewhat darker upper surface, lighter yellow belly, duller buffy or brownish-tinged throat and chest, and average larger bill. Differs from *T. f. viridiceps* of extreme northeastern Perú by much paler green upper parts and more yellowish, less greenish, under parts. Differs from *T. f. collingwoodi* of Trinidad by darker green upper parts and paler yellow under parts.

RANGE.—The vicinity of Faro, north bank of the lower Amazon, Brazil, crossing to the south bank in the area between Villa Bella Imperatríz (west of the Rio Tapajoz) and the Tocantins. Reappears in the region about the foot of Mt. Duida, Venezuela.

DESCRIPTION OF TYPE.—Upper parts near Warbler Green × Serpentine Green (bright Warbler Green in *flaviventris;* light Olive Green in *viridiceps;* golden Pyrite Yellow in *collingwoodi*). Lores dark Yellow Ocher; auriculars Olive Lake; whole throat and chest Deep Colonial Buff; sides Yellowish Citrine; middle of belly Citron Yellow × Strontian Yellow; flanks duller and slightly more olive-tinged. Wings blackish brown; outermost primary with a very narrow, dull, pale margin; remainder of primaries edged externally with Warbler Green; secondaries similar but with edges of inner ones brighter and yellower, approaching Picric Yellow toward tip of innermost; tertials with outer margins broader and more whitish, occupying half of the outer web on the innermost; lesser upper wing-coverts like the back; median and greater series dusky with tips of median and outer margins of greater ones Olive Yellow on the inner feathers, brightening to Strontian Yellow on the outer feathers of each series; under wing-coverts largely Barium Yellow with a slightly brownish patch near the bend of the wing; bend of wing Strontian Yellow × Wax Yellow; inner margins of remiges narrowly dull yellowish white. Tail dark Hair Brown with outer margins like the back. Maxilla (in dried skin) black; mandible whitish; feet dull brownish. Wing, 59 mm.; tail, 46; exposed culmen, 10; culmen from base, 14.5; tarsus, 17.

REMARKS.—Females like the males.

The most curious fact in connection with the present form is the apparent inclusion in it of the birds from the foot of Mt. Duida, Venezuela, but the Duida birds appear to be indistinguishable from it. I am not sure that *dissors* does not go even farther to the northward since two specimens from Las Trincheras, Carabobo, and one from Tucacas, Falcon, Venezuela, show the characters of this form in ready distinction from those of *aurulentus* of northern Colombia or *collingwoodi* of Trinidad. One skin from Mt. Bucarito, Tocuyo, is equivocal, being rather golden for *dissors* but dull for *collingwoodi*. In spite of the curious geographical arrangement, therefore, I assign all these localities to the range of *dissors* until greater series from some of the places shows an error in this respect.

The arrangement is all the more unusual because *viridiceps* occurs on the western side of the mouth of the Negro and *collingwoodi* at Monte Alegre, a little way east of Faro, judging by a single specimen at hand from this locality and one from Igarapé Paituna.

A good series from Santa Marta, Colombia, and a nearly equal number from Trinidad and Tobago demonstrate a good distinction between the two populations, representing *aurulentus* and *collingwoodi*. The Santa Martan birds are clearer, lighter green and yellow than the others which, in turn, have a golden tint on the upper parts and a pronounced suffusion of buff on the chest, with the belly and wing-markings deeper yellow than in the Colombian specimens. *Collingwoodi* occupies an extensive area, extending westward along northern Venezuela from Cristóbal Colón to Cumanacoa and up the Orinoco to Ayacucho and the Caura Valley. It ranges southeastward across the Guianas (I have seen no specimens from French Guiana) and south to the Rio Surumú and Rio Cotinga, northern Brazil, and thence to Monte Alegre and Igarapé Paituna on the north bank of the Amazon east of Faro. Birds from British Guiana have been separated as "*gloriosus*" by Chubb but I am unable to distinguish a Guianan form and accept *gloriosus* as a synonym of *collingwoodi*.

The Santa Martan form remains as *aurulentus* with a range extending to Varrud on the lower Río Magdalena, Colombia.

To complete the review of the species of *Tolmomyias*, I have examined "*T. megacephalus*" but find that it is out of place in this genus. It properly belongs in *Ram-*

photrigon along with a new form that may be distinguished as follows.

Ramphotrigon megacephala boliviana, new subspecies

TYPE from Mission San Antonio, Río Chimoré, Province of Cochabamba, Bolivia; altitude 1300 feet. No. 137,633, American Museum of Natural History. Adult male collected August 11, 1915, by L. E. Miller and Howarth Boyle; original No. 13,520.

DIAGNOSIS.—Differs from *R. m. megacephala* of southeastern Brazil and the Misiones region of Argentina by much browner chest and duller yellow belly, and by lacking the dark lateral crown-stripes and brighter frontal patch in place of which the whole top of the head is greenish with dusky centers to all of the feathers (somewhat resembling *R. fuscicauda* in this particular).

RANGE.—Known only from northern Bolivia.

DESCRIPTION OF TYPE.—Top of the head with the edges of the feathers near Dark Greenish Olive and the centers dusky; back brighter, Yellowish Olive; upper tail-coverts tinged with Buffy Olive. Lores mostly dusky brown but with a conspicuous pale yellow superciliary stripe passing over the eye to its posterior upper corner; lower eyelid similarly pale yellow; auriculars brownish Olive; chin narrowly yellowish white; throat near Deep Colonial Buff with traces of dusky margins giving a somewhat streaked appearance; malar region darker and tinged with olive; breast brownish Buffy Citrine with the margins of the feathers approaching Old Gold; sides near Saccardo's Olive; belly Barium Yellow, sharply defined from the breast; flanks similar; under tail-coverts Naphthalene Yellow. Remiges blackish brown; primaries with outer margins very narrowly and inconspicuously paler, Hair Brown; secondaries with outer margins broader and paler Cream-Buff × Colonial Buff; margins of tertials still broader and paler, near Ivory Yellow. Upper wing-coverts dusky; lesser series tipped with the color of the back; median series broadly tipped and greater series exteriorly margined toward the tip with Cinnamon-Buff; primary-coverts uniformly dusky; under wing-coverts and axillars Chamois, more cinnamomeous toward the bend of the wing; inner margins of remiges Pinkish Buff. Tail dark brown edged externally with Buffy Citrine and narrowly tipped with Pinkish Buff. Maxilla (in dried skin) blackish; mandible yellowish at base and dark brown terminally; feet dark brown. Wing, 64 mm.; tail, 57; exposed culmen, 11.5; culmen from base, 15.5; tarsus, 17.

REMARKS.—Female like the male but smaller (wing, 60; tail, 52) and, in the single skin at hand, a little less strongly cinnamomeous in the hue of the breast, wing-bars, and wing-lining.

This form stands, in a sense, between *megacephala* and *fuscicauda* and might be considered as a link uniting these three forms into a single species. Nevertheless, I should like to see more specimens of *fuscicauda* before proposing this arrangement. The specific assignment to *megacephala* appears to be justifiable. On the other hand, the transfer of *megacephala* (and *boliviana*) from *Tolmomyias* to *Ramphotrigon* becomes of obvious necessity when the new form is examined in comparison with *ruficauda*, *fuscicauda*, and *megacephala*. The pattern and even the hues of coloration are in agreement and, more significantly, the shape of the bill and the strong development of the rictal bristles point to the close relationship of these birds in distinction from *Tolmomyias*.

SPECIMENS EXAMINED

T. s. sulphurescens.—
BRAZIL:
Rio de Janeiro, Therezopolis, 1 ♀;
Monte Serrat, 1 ♀, 1 (?);
Paraná, Castro, 1 ♂, 1 ♀;
Tibagy, 2 ♂, 1 (?);
Foz de Iguassú, 1 ♂, 1 ♀;
Porto Mendez, 1 ♀;
Guayra, 1 ♂;
Espirito Santo, Santa Barbara de Caparão, 1 ♀;
Baixo Guandú, 2 ♂, 1 ♀;
Minas Geraës, Fazendinha, 1 ♂;
Rio Caparão, 1 ♂, 1 ♀;
Rio Doce, 1 (?);
São Francisco, 1 ♂;
Rio Grande do Sul, Sapyrunga, 2 ♂;
Sananduva, 4 ♂;
Campo Bom, 1 ♂, 1 ♀;
Lagôa Vermelha, 1 ♂, 1 ♀, 1 (?);
São Paulo, Victoria, 2 ♂, 1 ♀;
Fazenda Cayoá, 1 ♂, 1 ♀.
PARAGUAY:
east of Caaguassú, 2 ♂, 1 (?).

T. s. subsp. ?—
BRAZIL:
Bahia, Sincorá, 1 ♂, 1 ♀;
Jiquy, 1 ♂, 1 ♀, 1 (?);
Iracema, 1 ♂, 1 ♀;
Baixão, 1 ♀;
Piauhy, Parnagua, 1 ♀.

T. s. mixtus.—
BRAZIL:
Rio Tocantins, Baião, 5 ♂ (incl. type), 1 (?);
Maranhão, Alto de Alegria, 2 ♂[1].

T. s grisescens.—
PARAGUAY:
Trinidad, 2 ♂, 1 ♀;

[1] Specimens in Field Museum of Natural History, Chicago.

Fort Wheeler, 2 ♂;
La Fonciere, 2 ♂, 1 ♀;
Zanja Moroti, 1 ♂, 2 (?);
Belén, 1 ♂, 1 ♀.

T. s. pallescens.—
BRAZIL:
Matto Grosso, Chapada, 2 ♂, 3 ♀, 1 (? ♀);
Urucum, 5 ♂, 1 ♀;
Descalvados, 2 ♂;
Tapirapoan, 1 ♀;
Campanario, 1 ♂.
ARGENTINA:
Salta, Aguary, 1 ♂.
BOLIVIA:
Santa Cruz, 1 ♂ (type);
Vermejo, 2 ♂;
Mapiri, 1 (?);
Tres Arroyos, 1 ♀;
Todos Santos, 3 ♂, 1 ♀;
Prov. Sara, "Camp-wood," 2 ♂.

T. s. inornatus.—
PERÚ:
Santo Domingo, 1 ♂ (type);
Río Inambari, 1 (?).

T. s. peruvianus.—
PERÚ:
Utcuyacu, 1 ♀;
Lomo Santo, 1 ♂;
Nuevo Loreto, 1 (?).
ECUADOR:
Sabanilla, 2 ♀.

T. s. insignis.—
PERÚ:
Sarayacu, 1 ♀.
BRAZIL:
Teffé, 1 ♂;
Rio Madeira, Calamá, 1 (?);
Santo Antonio de Guajará, 1 ♀;
Borba, 2 ♀, 1 (?);
Igarapé Auará, 1 ♀;
Rosarinho, 2 ♂ (incl. type);
Lago Sampaio, 1 ♂, 2 ♀;
Lago Miguel, 1 ♂, 1 ♀;
Rio Negro, Muirapinimá, 2 ♂, 3 ♀, 1 (?);
Rio Jamundá, Faro, Castanhal, 1 ♂, 1 ♀.

T. s. cherriei.—
FRENCH GUIANA:
Cayenne, 6 ♂ (incl. type);
Roche Marie, 1 ♂.
DUTCH GUIANA:
near Paramaribo, 1 ♂, 1 ♀.
VENEZUELA:
Caicara, 1 ♂;
Roraima, 1 ♂, 1 ♀.

T. s. berlepschi.—
TRINIDAD:
Caparo, 3 ♂, 6 ♀ (incl. type);
Heights of Aripo, 5 ♂;
Carenage, 1 ♂, 1 ♀;
Princestown, 2 ♂, 3 ♀, 1 (?);
Caura, 1 ♀;
"Trinidad," 1 ♂, 1 (?).

T. s. duidae.—
VENEZUELA:
Mt. Duida, Caño Seco, 3 ♂ (incl. type), 3 ♀.

T. s. exortivus.—
VENEZUELA:
Las Trincheras, Carabobo, 2 ♂;
Cotiza, Caracas, 1 ♀;
El Liman, 2 ♀, 1 (?);
San Antonio, 2 ♂, 1 ♀, 1 (?);
Río Neveri, 1 ♂;
El Pilar, 1 ♂;
Caripé, 1 (?);
El Guácharo, 1 ♂;
San Estéban, 2 ♂;
Campos Alegre Valley, 1 ♀;
Valley of Santa Ana, 1 ♀;
La Latal, 1 ♀.
COLOMBIA:
Santa Marta, Bonda, 2 ♂;
Minca, 1 (?).

T. s. confusus.—
COLOMBIA:
Villavicencio, 1 ♂ (type), 1 ♀;
Buena Vista, 1 ♀, 1 (?);
Malena, 1 ♂;
Opon, 1 ♀;
"Bogotá," 2 (?).
ECUADOR:
upper Río Suno, 1 ♀.

T. s. asemus.—
COLOMBIA:
Jiménez, 1 "♀" (?);
Dabeiba, 1 ♂;
Cali, 1 ♂;
Río Frío, 1 ♂;
Miraflores, 1 ♂;
Chicoral, 1 ♀;
"Bogotá," 3 (?).

T. s. aequatorialis.—
ECUADOR:
Guayaquil, 2 ♂;
Celica, 1 ♀;
Chongocito, 2 ♂, 1 ♀;
La Puente, 1 ♂;
Casanga, 2 ♂, 1 ♀;
Guainche, 2 ♂;
Portovelo, 2 ♂, 1 (?);
La Chonta, 1 ♀;
Río Pullango, 2 ♂, 1 ♀;
Lunamá, 1 ♀;
Duran, 1 ♂, 1 ♀;
Milligali, 1 ♂;
Santa Rosa, 1 ♀;
Alamor, 1 ♀.
PERÚ:
Paletillas, 3 ♂;
Milagros, 1 ♂, 1 ♀;
Palambla, 2 ♂.

T. s. flavo-olivaceus.—
PANAMÁ:
(Tocumé, Lion Hill, Gatun, Santa Fé, El Villano, La Marea, Chitrá, Boquete, Bogava, and La Colorado), 29 ♂, 9 ♀, 3 (?).

T. s. cinereiceps.—
COSTA RICA:
(Carrillo, El Zapotal, Bonilla, Aquinares, Las Cañas, Bebedero, Orotina, El Pozo, Miravalles, Térraba, Lagarto, Tenorio,

Paso Real, Bolson, El General, and Boruca), 5 ♂, 9 ♀.

NICARAGUA:

(Volcán Chinandega, Matagalpa, Volcán Viejo, Calabasas, Volcán Mombacho, Tuma, Chontales, and San Rafael del Norte), 9 ♂, 6 ♀.

GUATEMALA:

(Chimoxan, Pantaleon, San Felipe, Puebla, Finca Cipres, Finca Sepacuite, Finca Chamá, Finca El Espinosa, Finca Carolina, Hacienda California, Secanquim, and "Guatemala"), 22 ♂, 20 ♀, 6 (?).

MEXICO:

Tehuantepec, Japana, 1 ♂;
Santa Efigenia, 1 (?).

T. f. flavotectus.—

ECUADOR:

San Javier, 2 ♀ (incl. type);
Paramba, 1 ♂, 1 ♀.

COLOMBIA:

Barbacoas, 1 ♂;
Nóvita, 1 ♂;
Buenavista, 1 ♀;
Puerto Valdivia, 1 ♂.

PANAMÁ:

[Lion Hill], 1 ♂, 1 ♀ (cotypes of *Rhynchocyclus marginatus* Lawrence);
Balboa, 1 (?);
Tapalisa, 1 ♂.

COSTA RICA:

Parismina, 2 ♂;
Limón, 1 ♀.

T. f. obscuriceps.—

ECUADOR:

lower Río Suno, 1 ♂ (type), 1 ♀;
below San José, 1 ♂;
mouth of Río Curaray, 2 ♂.

COLOMBIA:

Florencia, 1 ♀.

PERÚ:

Apayacu, 2 ♂, 1 ♀.

T. f. clarus.—

PERÚ:

Jeberos, 2 ♀;
Chamicuros, 2 ♀;
Pomará, 2 ♂, 3 ♀;
Río Seco, west of Moyobamba, 1 ♂ (type), 1 ♀;
Santa Rosa, Río Ucayali, 1 ♂, 1 ♀;
Lagarto, 2 ♀;
Astillero, 1 ♂.

T. f. calamae.—

BOLIVIA:

Todos Santos, 3 ♀.

BRAZIL:

Calamá, 2 ♂ (incl. type), 2 ♀;
Barão Melgaço, 1 ♂, 2 ♀;
Monte Cristo, 1 ♂;
Rio Roosevelt, "Camp 8," 1 ♂;
"Camp 21," 1 ♀.

T. f. assimilis.—

BRAZIL:

Teffé, 1 ♀;
Rio Tapajoz, Igarapé Amorín, 1 ♂, 1 ♀;
Igarapé Brabo, 1 ♂.

T. f. paraensis.—

BRAZIL:

Utinga, 1 ♂ (type);
Rio Tocantins, Cametá, 1 ♂;
Maranhão, Tury-assú, 2 ♂[1].

T. f. neglectus.—

BRAZIL:

Rio Negro, Muirapinimá, 1 ♀;
Tabocal, 1 ♀;
San Gabriel, 1 ♂ (type);
Yavanari, 1 ♂;
Yucabí, 1 ♂;
Mt. Curycuryari, 4 ♂, 1 (?);
Tatú, 5 ♂, 4 ♀;
Rio Uaupés, Ianarete, 1 ♂;
Tahuapunto, 2 ♀.

VENEZUELA:

Río Cassiquiare, Buena Vista, 1 ♀;
Solano, 1 ♀;
opposite El Merey, 1 ♂, 1 ♀;
junction of Río Huaynía and Cassiquiare, 3 ♀;
Río Orinoco, mouth of Río Ocamo, 1 ♂, 1 ♀;
Esmeralda, 1 ♂, 2 ♀;
Maipures, 1 ♂;
Río Caura, La Prición, 2 ♂;
Mt. Duida, Caño León, 2 ♂;
Playa del Río Base, 1 ♂;
Píe del Cerro, 1 ♀;
western foot of Mt. Duida, 1 ♂.

T. f. examinatus.—

BRITISH GUIANA:

Minnehaha Creek, 2 ♂, 1 ♀;
Tumatumari, 2 ♂, 2 ♀;
Rockstone, 1 ♀;
Potaro Landing, 3 ♂, 2 ♀, 1 (?).

DUTCH GUIANA:

near Paramaribo, 1 (?);
"interior," 2 ♂.

BRAZIL:

Faro, San José, 1 ♂, 1 ♀, 1 (?);
Castanhal, 4 ♂, 1 ♀, 1 (?).

VENEZUELA:

Mt. Auyan-tepui, 1 ♂.

T. p. poliocephalus.—

VENEZUELA:

Río Caura, Maripa, 1 ♀ (type);
La Prición, 1 ♀;
Río Orinoco, Suapure, 1 ♂;
Maipures, 1 ♂;
La Laja, 1 ♂, 1 ♀;
Mt. Duida, Caño León, 1 ♂;
western foot of Mt. Duida, 1 ♀;
Río Cassiquiare, Solano, 1 ♂.

BRAZIL:

Rio Uaupés, Tahuapunto, 3 ♀;
Ianarete, 1 ♂;
Rio Negro, Tatú, 2 ♀;
Yucabí, 2 ♂, 1 ♀;
Camanaos, 1 ♀;
Tabocal, 1 ♀;
Muirapinimá, 1 (?);

[1] Specimens in Field Museum of Natural History, Chicago.

Igarapé Cacao Pereira, 1 ♂, 2 ♀;
Teffé, 1 ♂, 2 ♀.

ECUADOR:
Río Suno, above Avila, 1 ♂, 2 ♀;
mouth of Río Curaray, 2 ♀.

COLOMBIA:
Florencia, 1 ♂, 1 ♀;
La Morelia, 2 ♂.

PERÚ:
Puerto Indiana, 2 ♂;
Pomará, 1 ♂;
Jeberos, 1 ♂;
"Upper Ucayali" = near Cashiboya, 1 ♂;
Río Ucayali, Lagarto, 1 ♀;
Santa Rosa, 1 ♂;
Perené, 1 (?);
Río Tavara, 1 ♂.

T. p. sclateri.—
BRAZIL:
Manaos, 1 ♂, 3 ♀;
Faro, Castanhal, 1 ♂, 1 ♀;
San José, 2 ♂, 2 ♀;
Pará, Prata, 1 ♂;
Rio Tocantins, Arumatheua, 1 ♀;
Cametá, 1 (?);
Baião, 5 ♂;
Mocajuba, 1 ♀;
Ilha de Taiuna, 1 ♂;
Rio Xingú, Villarinho do Monte, 1 ♂, 1 ♀;
Tapará, 1 ♀;
Porto de Moz, 1 ♂, 1 ♀;
Rio Tapajoz, Igarapé Amorín, 2 ♂, 3 ♀, 1 (?);
Igarapé Brabo, 1 ♂, 2 ♀;
Boim, 1 ♀;
Piquiatuba, 1 ♀;
Aramanay, 1 ♂;
Caxiricatuba, 1 ♂;
Tauarý, 1 ♂, 1 (?);
Rio Amazonas, Villa Bella Imperatríz, 2 ♂;
Rio Madeira, Borba, 1 ♂, 1 ♀;
Rosarinho, 2 ♀;
Igarapé Auará, 1 ♂, 1 ♀;
Calamá, 1 ♀.

T. f. flaviventris.—
BRAZIL:
"Brasilien," 1 ♂ (cotype), 1 (?) (cotype);
Bahia, Bahia, 5 ♂, 5 ♀;
Verruga, 1 ♂;
"Bahia," 3 (?);
Goyaz, Rio Araguaya, 1 ♂, 1 ♀;
Maranhão, near Miritiba, 1 ♀;
Matto Grosso, Tapirapoan, 1 ♀.

T. f. dissors.—
BRAZIL:
Rio Tocantins, Baião, 1 ♂;
Rio Xingú, Villarinho do Monte, 1 (?);
Rio Tapajoz, Caxiricatuba, 2 ♂;
Igarapé Amorin, 3 ♂, 2 ♀;
Igarapé Brabo, 1 ♂;
Rio Amazonas, Villa Bella Imperatríz, 1 ♂, 3 ♀, 1 (?);
Faro (including Lago Uaimý, mouth of Rio Paratucú, Maracaná, Castanhal, and São José), 7 ♂, 6 ♀ (incl. type), 1 (?).

VENEZUELA:
Mt. Duida, Valle de los Monos, 3 ♂, 1 ♀, 1 (?);
Savana Grande, 1 ♂;
Playa del Río Base, 1 ♂;
Campamento del Medio, 1 ♀;
Esmeralda, 2 ♂;
Lalaja, 1 ♂;
mouth of Río Ocamo, 1 ♂;
Carabobo, Las Trincheras, 1 ♂, 1 ♀;
Falcón, Tucacas, 1 ♀;
Tocuyo, near Mt. Bucarito, 1 (?).

T. f. collingwoodi.—
TRINIDAD:
Princestown, 5 ♂, 3 ♀;
Caparo, 3 ♂, 1 ♀;
Tacarigua, 1 ♂;
Carenage, 1 (?);
Pointe Gourde, 1 ♀.

TOBAGO:
Castare, 2 ♂;
Mariah, 2 ♀;
"Tobago," 1 (?).

VENEZUELA:
Caicara, 6 ♂, 4 ♀;
Suapure, 1 ♂, 1 ♀;
Maripa, 2 ♀;
Ciudad Bolívar, 2 ♂, 1 ♀;
Agua Salada de Ciudad Bolívar, 2 ♂, 1 ♀;
Altagracia, 1 ♂, 1 ♀;
Maipures, 1 ♂;
Ayacucho, 1 ♂;
Río Caura, Temblador, 1 ♀;
La Unión, 1 ♂;
La Prición, 1 ♂, 1 (?);
Cumanacoa, La Florida, 1 ♀;
Cristóbal Colón, 1 ♂, 1 ♀;
Gairaca, 1 ♀.

DUTCH GUIANA:
near Paramaribo, 2 ♀;
Savanna of Surinam, 1 (?);
"Rengoer," 1 (?).

BRITISH GUIANA:
Annai, 1 ♂, 3 ♀.

BRAZIL:
Rio Surumú, Frechal, 3 ♂, 1 ♀;
Rio Cotinga, Limão, 1 ♀;
Monte Alegre, 1 ♀;
Igarapé Paituna, 1 ♀.

T. f. viridiceps.—
BRAZIL:
Rio Negro, Igarapé Cacao Pereira, 1 ♂, 1 ♀;
Rio Madeira, Borba, 1 ♂;
Igarapé Auará, 2 ♂, 3 ♀;
Rosarinho, 1 (?);
Teffé, 1 ♀.

PERÚ:
Río Ucayali, Lagarto, 1 ♀;
mouth of Río Santiago, 1 ♂;
Puerto Indiana, 1 ♂, 1 ♀.

ECUADOR:
mouth of Río Curaray, 3 ♂, 1 ♀;
below San José, 2 ♂;
upper Río Suno, 1 ♀;
Zamora, 1 ♂, 1 ♀;

"Ecuador," 1 (?).
COLOMBIA:
Florencia, 1 ♂.
T. f. subsimilis.—
BOLIVIA:
Guanay, 1 ♂.
PERÚ:
La Pampa, 2 ♀;
Perené, 2 ♂;
Tulumayo, 2 ♂;
La Merced, 2 (?);
Chanchamayo, 1 ♀;
Río Seco, west of Moyobamba, 1 ♂.
BRAZIL:
Marmellos, 1 (?).
T. f. aurulentus.—
COLOMBIA:
Santa Marta, Bonda, 3 ♂, 2 ♀, 12 (?);
Cacagualito, 1 (?);
Río Magdalena, Verrud, 1 ♂;
"Bogotá," 1 (?).
?*T.* sp.? (*flaviventris* × *flavotectus*?).—
PERÚ:
mouth of Río Santiago, 1 ♂.
Ramphotrigon m. megacephalus.—
BRAZIL:
Minas Geraës, Pico de Bandeira, 1 ♂.
ARGENTINA:
Puerto Segundo, 1 (?).
R. m. bolivianus.—
BOLIVIA:
Mission San Antonio, 2 ♂ (incl. type), 1 ♀.

Rhynchocyclus fulvipectus (Sclater)

Cyclorhynchus fulvipectus SCLATER, 1860, P. Z. S. London, XXVIII, p. 92—Nanegal, Ecuador; British Mus.

A male from Río Seco, northern Perú, and a female from Caradoc, in the southeastern part of the country agree with birds from various parts of Colombia and Ecuador and a single skin from Bolivia. There is considerable variation in the intensity of color on the chest, the amount of brownish suffusion on the top of the head, the brightness of yellow on the belly, and other characters but these differences appear to have no taxonomic significance. The Bolivian specimen is the first recorded from that country.

The nearest relative of this species is *R. pacificus* of northwestern Colombia which I believe is unrelated to *R. brevirostris* of southern Mexico to southern Panamá. *Brevirostris* and *hellmayri* have the lores light gray, the auriculars conspicuously whitish basally and dusky terminally, and a narrow eye-ring decidedly white. *Pacificus* has the whole side of the head relatively uniform greenish, with lores very slightly grayish. The fulvous wing-bars and margins of inner secondaries, the cinnamomeous inner margins of the remiges not very sharply defined, the brownish tail, and the general hue of the upper parts are more in accord with *fulvipectus* than the *brevirostris* group although the bill of *pacificus* seems to have a somewhat flatter culmen than either of the others. For the present I prefer to keep the three species distinct.

Earlier records from Perú are from Huaynapata, Ropaybamba, Huambo, Uchco, and Chinchao.

SPECIMENS EXAMINED

R. fulvipectus.—
COLOMBIA:
Cerro Munchique, 1 ♀;
Ricaurte, 2 ♂, 1 ♀;
Aguadita, 1 ♂;
Andalucia, 1 ♀;
La Candela, 1 ♂.
ECUADOR:
Mindo, 1 ♀;
Río Oyacachi, 1 ♀;
lower Sumaco, 1 ♂;
Baeza, 1 ♂, 1 ♀;
Macas, 1 (?);
Zamora, 1 ♂, 1 (?).
PERÚ:
Caradoc, 1 ♀;
Río Seco, west of Moyobamba, 1 ♂;
Chinchao, 1 ♀[1];
Uchco, 1 ♂[1].
BOLIVIA:
Locotal, 1 ♂.

Rhynchocyclus olivaceus aequinoctialis (Sclater)

Cyclorhynchus aequinoctialis SCLATER, 1858, P. Z. S. London, XXVI, p. 70—Río Napo, Ecuador; British Mus.

The arrangement of the members of this species from Amazonian and neighboring areas is far from satisfactory. The series of birds from eastern Ecuador shows certain characteristics that set them apart from typical *olivaceus* and *guianensis* and give them more resemblance to *flavus* than to any other subspecies. The moderately bright yellow belly, the relative prominence of broad striping on the anterior under parts (never very sharply defined),

[1] Specimens in Field Museum of Natural History, Chicago.

the clear and moderately dark back, the yellowish, narrow, and sharply defined outer margins of the tertials and inner secondaries, and the darker cap with the feathers rather compact, centered with dusky shaft-streaks, and slightly elongate, forming the nearest suggestion of a crest shown by any form except *flavus*, make the recognition of typical *aequinoctialis* fairly easy.

R. o. bardus of Panamá is brighter throughout, with the same pattern, but the top of the head is not so nearly crested and the feathers of that region appear not to have dusky centers. *R. o. flavus* is more strongly "crested" with the centers of the feathers even more broadly dusky, the pectoral "stripes" are less prominent, and the size, particularly of the bill, is larger.

The other recorded forms all lack the sharply defined yellowish outer margins of the tertials, having these margins green and not sharply defined although some of the inner secondaries may show a buffy color somewhat more sharply delimited, especially toward the tips of the feathers. Typical *olivaceus* of southeastern Brazil is recognizable by the large size and the dark and more evenly grayish chest. *R. o. guianensis* has the belly paler, duller yellow, and the chest paler, often as much yellowish as grayish.

I have seen no Guianan specimens of *guianensis* and hence cannot comment on the amount of variation which may exist in topotypical material. Specimens from Faro, Brazil, are about as dark on the back as *aequinoctialis* and have the top of the head slightly tinged with brownish. Birds from south of the Amazon, from the Rio Tapajoz and Villa Bella Imperatríz, average lighter and brighter green on the back, rarely showing any brownish tinge on the top of the head, but some of these south-bank specimens are not distinguishable from the Faro birds. Specimens from the Pará district are closer to *olivaceus*, though not typical, and one skin from the Rio Xingú is intermediate, nearer *guianensis*. On the other hand, two specimens from Mt. Auyan-tepui and two from Mt. Duida, Venezuela, are still darker than the Faro series, both on the back and on the breast, and one of the Duida birds has the whole top of the head dark olive-brown, unmatched by any specimens from other localities. Whether any of these variations deserves further treatment by the description of new forms must await larger series from the critical regions. The Duida-Auyan-tepui birds may deserve separate recognition if, indeed, they are not entitled to the name *intermedius*, described from the Río Yuruan but long synonymized with *guianensis*.

Peruvian birds are somewhat equivocal. Two specimens from Apayacu, north of the Amazon, agree with *guianensis* in the coloration of the under parts but one of them, an adult female (the other is a younger male) has the "crest" of *aequinoctialis* and a suggestion of the sharply margined tertial border. A single female from the mouth of the Río Santiago, also north of the Amazon, has the bright colors of *aequinoctialis*, with the back even brighter but with less obvious striping on the breast while the tertials are margined with diminishing green as in *guianensis*. Two birds from southeastern Perú are like the Río Santiago specimen except that the margins of the tertials are as in typical *aequinoctialis*. A specimen from Puerto Bermúdez, examined some years ago, appears in my notes as having yellow-edged tertials and secondaries and a brighter yellow belly than a Maranhão skin.

Apparently, therefore, all of the Peruvian specimens examined show one or more of the characters of *aequinoctialis* in varying combination, the Apayacu birds least of all. For the present, therefore, they may be assigned to this form with recognition of their deviations from the typical condition. There are no previous records from Perú except of the Puerto Bermúdez skin.

Two specimens from northern Bolivia may be distinct but require support by additional specimens. They agree with *aequinoctialis* in size and the possession of sharply margined tertials but they have a much paler belly and a more grayish chest, features that may be due to some fading or which may be pure intermediacy. A skin from Marmellos, Rio Madeira, Brazil, and one from Barão Melgaço, Matto Grosso, are

intermediate between the Bolivian birds and *guianensis*, being a little brighter or more yellowish beneath than the Bolivian skins and with the outer margins of the tertials less sharply defined though a little more obvious than in typical *guianensis*.

In view of the individual variation shown throughout the species, therefore, I hesitate to do more than call attention to the various tendencies and leave further distinctions to be made, if necessary, when more abundant material may show the degree of constancy of the different characters.

This may be the place to record that *Cotinga virescens* Thunberg (1823, Mém. Soc. Imper. Natur. Moscou, VI, p. 178—"Brésil;" Upsala Mus.) is a synonym of *Rhynchocyclus olivaceus* (*Platyrhynchus olivaceus* Temminck, 1820, Nouv. Rec. Pl. Col., livr. 2, Pl. XII, fig. 1—"Brésil"). The type, an adult male, was sent by Count Gyldenstolpe to Dr. Hellmayr for examination in connection with the preparation of Part VI of the "Catalogue of the Birds of the Americas" but, being out of place in that number, and properly belonging in Part V, already issued, the identification of the type has not found its way into print. The type of "*virescens*," which I had the good fortune to examine, is a characteristic specimen of the southeast-Brazilian form of the present species and bears on its label the notation, "Mus. Westin." Since Westin was Swedish Consul General at Rio de Janeiro in the years surrounding 1818, the type locality of *Cotinga virescens* Thunberg may be formally designated as Rio de Janeiro.

Specimens Examined

R. o. olivaceus.—
Brazil:
Bahia, Cajazeiras, 3 ♂, 2 ♀, 2 (?);
Bahia, 1 (?);
Pernambuco, Palmares, 1 ♀;
Espirito Santo, Baixo Guandú, 3 ♂, 4 ♀, 1 (?);
Lagôa Juparaná, 3 ♂, 1 ♀;
Minas Geraës, Resplendor, 1 ♂, 1 ♀;
São Benedicto, 1 ♀;
[Rio de Janeiro], 1 ♂[1] (type of *virescens*);
Pará, Prata, 1 ♂ (× *guianensis*);
Patagonia, 1 ♀ (× *guianensis*);
Igarapé-assú, 1 ♀ (× *guianensis*);
Maranhão, Tury-assú, 1 "♀"[2];
"Brazil," 2 (?) (incl. type of *nuchalis*).

R. o. guianensis.—
Brazil:
Faro, Castanhal, 6 ♂, 1 ♀;
Rio Jary, São Antonio de Cachoeira, 1 ♀;
Rio Xingú, Victoria, 1 ♂;
Rio Tapajoz, Igarapé Brabo, 1 ♂;
Igarapé Amorín, 3 ♂, 2 ♀, 1 (?);
Piquiatuba, 1 ♂;
Caxiricatuba, 2 ♂, 2 ♀;
Boim, 1 ♂;
Villa Bella Imperatríz, Boca R. Andirá, 1 ♂;
Lago Andirá, 1 ♂;
Serra de Parintins, 1 ♀.
Venezuela:
Mt. Duida, Caño Seco, 2 ♂;
Mt. Auyan-tepui (460 and 1100 met.), 2 ♂.
Ecuador:
upper Río Suno, 2 ♀;
lower Río Suno, 1 ♂, 1 ♀;
Cerro Galeras, 1 ♀.
Colombia:
La Morelia, 1 ♀.
Perú:
Apayacu, 1 ♂, 1 ♀;
mouth of Río Santiago, 1 ♀;
La Pampa, 1 ♂, 1 ♀;
Puerto Bermúdez, 1 ♂[2].
Bolivia:
Río Chaparé, 2 ♂.

R. o. flavus.—
Venezuela:
Cumbre Chiquitos, 1 ♂;
Cristóbal Colón, 1 ♂;
Las Quiguas, 1 ♀.

R. o. bardus.—
Panamá:
Río Chiman, 1 ♂;
Tapalisa, 1 ♂, 1 (?);
El Real, Río Tuyra, 2 ♀;
Chepigana, 1 ♀;
Tocoumé, 1 ♀;
Barro Colorado Is., 2 ♂.

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[1] Specimen in Upsala Museum.
[2] Specimen in Field Museum of Natural History, Chicago.